

EPA's Greenhouse Gas Reporting Program

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Outline



- Greenhouse Gas Reporting Program (GHGRP)
Background
- GHGRP & US GHG Inventory
- Data Reporting & Verification
- Uses of GHGRP Data
- 2010 Data Highlights
- Publication Tool Demonstration
- Key Dates
- Discussion

Key Elements of the GHG Reporting Program



- Annual reporting of GHGs by 41 source categories, accounting for about 85-90% of U.S. GHG emissions
 - 33 types of direct emitters
 - 6 types of suppliers of fuel and industrial GHG
 - Facilities that inject CO₂ underground for geologic sequestration, enhanced oil recovery, or any other purpose
- 25,000 metric tons CO₂ equivalent (CO₂e) or more per year reporting threshold for most sources
- All affected entities report all highest level US parent companies & percentage ownership for each parent company
- Direct reporting to EPA electronically
- EPA verification of GHG data

How much is 25,000 Metric Tons of CO₂e?



- 25,000 mtCO₂e are equivalent to:
 - Emissions from annual energy use of about 2,200 homes.
 - 58,000 barrels of oil.
 - 131 railcars' worth of coal.

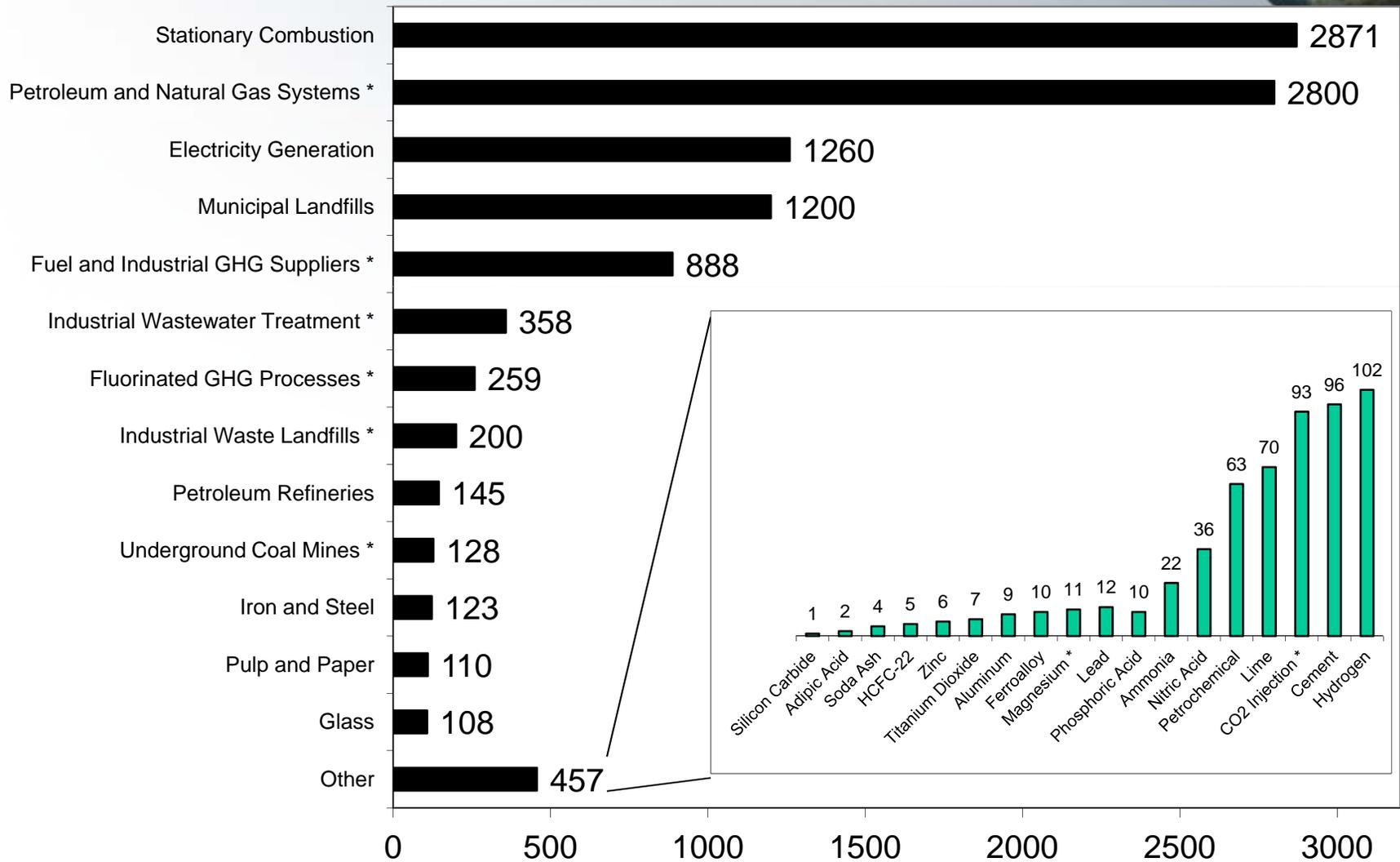
Overview of the GHG Reporting Program



- Monitoring began in 2010 for most source categories with first annual reports submitted to EPA in September 2011
- An additional 12 source categories began collecting data in 2011 (to report in 2012)
- Reporting only, no control or use requirements

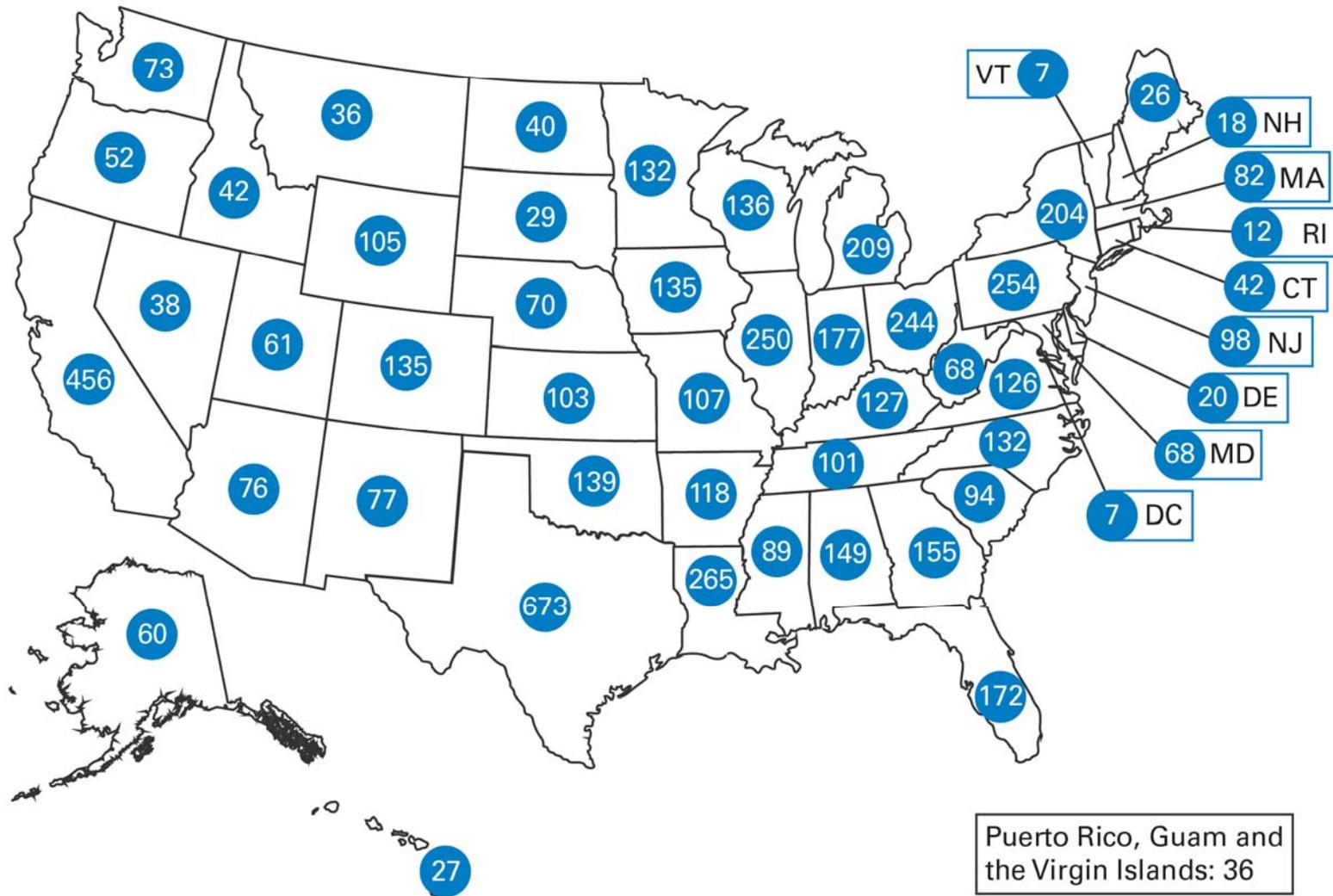


Implementation- Facilities Covered



* Approximate (first reports due Sep 2012)

Number of Facilities Reporting GHG Emissions by State - 2010



All data is as reported by facilities on 12/16/11.

This figure shows the number of facilities in each state that reported GHG emissions in 2010. The Greenhouse Gas Reporting Program generally covers those facilities that emit more than 25,000 metric tons of carbon dioxide equivalent per year. Entities only reporting GHG quantities associated with products supplied are not included in this graphic.

What GHGs Are Reported?



- CO₂
- CH₄ (methane)
- N₂O (nitrous oxide)
- Fluorinated GHGs
 - HFCs (hydrofluorocarbons)
 - PFCs (perfluorocarbons)
 - SF₆ (sulfur hexafluoride)
 - Other fluorinated gases (except CFC and HCFC and gases <1 mm Hg @25° C)

29 Source Categories Started in Reporting Year 2010



- **Adipic Acid Production (Subpart E)**
- **Aluminum Production (Subpart F)**
- **Ammonia Manufacturing (Subpart G)**
- **Cement Production (Subpart H)**
- **Electricity Generation (Subpart D)**
- **Ferroalloy Production (Subpart K)**
- **General Stationary Fuel Combustion Sources (Subpart C)**
- **Glass Production (Subpart N)**
- **HCFC-22 Production HFC-23 Destruction (Subpart O)**
- **Hydrogen Production (Subpart P)**
- **Iron and Steel Production (Subpart Q)**
- **Lead Production (Subpart R)**
- **Lime Manufacturing (Subpart S)**
- **Manure Management Systems (Subpart JJ)** *[EPA will not be implementing subpart JJ due to a Congressional restriction prohibiting the expenditure of funds for this purpose.]*
- **Municipal Solid Waste Landfills (Subpart HH)**
- **Miscellaneous Uses of Carbonates (Subpart U)**
- **Nitric Acid Production (Subpart V)**
- **Petrochemical Production (Subpart X)**
- **Petroleum Refineries (Subpart Y)**
- **Phosphoric Acid Production (Subpart Z)**
- **Pulp and Paper Manufacturing (Subpart AA)**
- **Silicon Carbide Production (Subpart BB)**
- **Soda Ash Production (Subpart CC)**
- **Suppliers of Coal-based Liquid Fuels (Subpart LL)**
- **Suppliers of Petroleum Products (Subpart MM)**
- **Suppliers of Natural Gas and Natural Gas Liquids (Subpart NN)**
- **Suppliers of Industrial Greenhouse Gases (Subpart OO)**
- **Suppliers of Carbon Dioxide (Subpart PP)**
- **Titanium Dioxide Production (Subpart EE)**
- **Zinc Production (Subpart GG)**

12 Additional Source Categories Started in Reporting Year 2011



- **Electronics Manufacturing (Subpart I)**
- **Fluorinated Gas Production (Subpart L)**
- **Magnesium Production (Subpart T)**
- **Petroleum and Natural Gas Systems (Subpart W)**
- **Use of Electric Transmission and Distribution Equipment (Subpart DD)**
- **Underground Coal Mines (Subpart FF)**
- **Industrial Wastewater Treatment (Subpart II)**
- **Imports and Exports of Equipment Pre-charged with Fluorinated GHGs or Containing Fluorinated GHGs in Closed-cell Foams (Subpart QQ)**
- **Geologic Sequestration of Carbon Dioxide (Subpart RR)**
- **Manufacture of Electric Transmission and Distribution (Subpart SS)**
- **Industrial Waste Landfills (Subpart TT)**
- **Injection of Carbon Dioxide (Subpart UU)**

2010 GHG Data Quick Summary



- Reports from over 6,700 entities
- Power plants are largest stationary source of direct emissions- 2,324 MMTCO₂e
- Refineries are second at 183 MMTCO₂e
- 100 facilities reported over 7 MMTCO₂e including 96 power plants, 2 iron and steel mills, 2 refineries
- 2010 data accounts for roughly 80 percent of total U.S. emissions.
 - This percentage reflects both upstream suppliers and direct emitters.
 - Among the data not covered are GHG emissions from smaller sources, and from agricultural and land-use activities.

GHGRP vs. U.S. GHG Inventory



- **The U.S. GHG Inventory is a comprehensive top-down assessment of national GHG emissions and removals which presents emissions across multiple years starting in 1990.**
 - U.S. GHG emissions calculated using internationally-accepted methods and nationally appropriate statistics
 - Emissions estimates not provided at the geographic or facility level
 - Includes small industrial emitters, residential and commercial sectors
 - Includes agriculture and land-use/forestry sectors
- **When compared in aggregate, some of the summary emissions totals for specific industries appear different in the Inventory and GHGRP.**
 - Different Source Category Definitions
 - Reporting Threshold
 - Lack of Disaggregated Data to Represent Certain Industries
 - Use of Continuous Emissions Monitoring Technologies
 - Differences in use of Default International Factors from Facility-Specific Methods

2010 Data: Inventory and GHGRP



Source	Inventory Emissions	GHGRP Emissions	Why Different?
Fuel Combustion: Industrial Sector	734 (combustion)	608 (combustion)	25k threshold, Differences in reporting of fuels for GHGRP vs. EIA
Electricity Generation	2,277 (combustion)	2,326 (combustion + SO2 controls)	Some differences in definition of an EGU between GHGRP vs. EIA
Ammonia	13.7 (process)	13.9 (process)	All-in source, similar methods
Cement	30.5 (process)	42.9 (process + combustion)	Continuous Emissions Monitoring in GHGRP, Combustion vs. Process
ODS Substitutes	252.2 (potential)	254.5 (potential)	Inventory includes imports of pre-charged products, GHGRP will have that data Track 2
Refineries	0.4 (process)	55.6 (process + combustion)	Source Category Definition
MSW Landfills	93.5	106.3	25k threshold 2 methods in GHGRP, facilities reported higher of 2 values

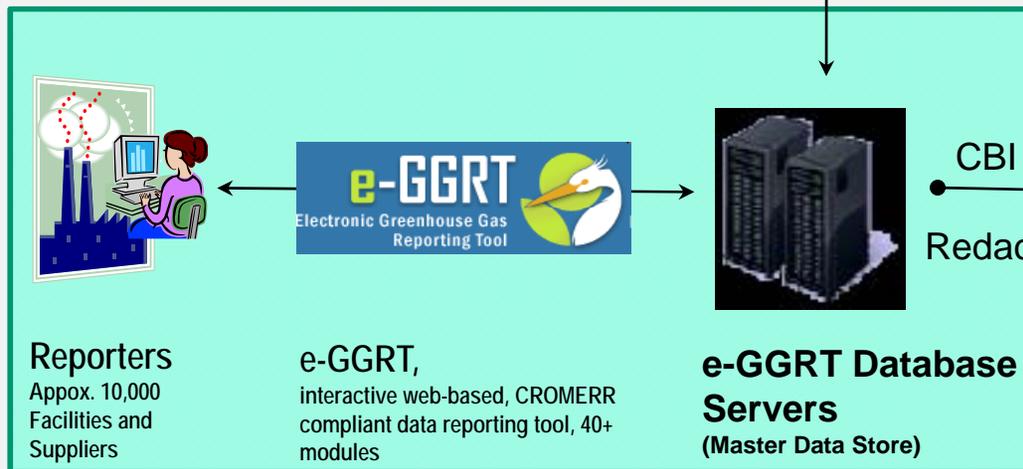
* All Values in Million Metric Tons CO₂e

Data Reporting

EPA GHG Data System



Data Verification
EPA-Internal CBI Secure



Collection (e-GGRT XML Reporting Schema)



EPA EnviroFacts:
(Under Development)
Serviceable, searchable and separately
hosted copy of non-CBI dataset. Open
Access to Public



State-Specific Service
Oriented data flow over
State-EPA Exchange Network
(e-GGRT XML Reporting Schema)



**Downloadable XLS,
XML & HTML Data Files,**
all non-CBI data (e-GGRT XML
Reporting Schema). Open Access to
Public



e-GGRT
Datamart



GHGRP Data Website
(ghgdata.epa.gov)
GUI with open-source APIs.
Open Access to public.

Publication (Datamart XML Schema) 14



Data Verification

- **Self certification**
 - Designated representative certifies report
 - Rule requires one designated representative (DR) and allows one alternate designated representative (ADR) for each facility and supplier
- **EPA verification**
 - Reports submitted through an electronic system (eGGRT)
 - Built-in range and completeness checks for reporters
 - Real time feedback allows facilities to correct reporting errors prior to report submission



Data Verification (II)

- **Electronic QA & consistency checks (Verification Tool)**
 - Checks include:
 - Validation
 - Reasonable Ranges
 - Algorithms
 - Year-to-year comparisons
 - Outside data sets (EIA, Part 75, etc.)
- **Reasonable ranges and algorithms were initially developed based on reliable outside data and expert knowledge**
 - Data review has lead to improved verification checks



Data Verification (III)

- Follow-up with reporters (Correspondence Tracker)
 - Goal: Work with facilities to improve data quality
 - Facilities better understand their emissions profile
 - This knowledge can lead to emissions reductions
 - EPA is able to improve our verification checks
- Facilities have 45 days to correct substantive errors and re-submit reports to EPA
- EPA reviews re-submitted reports and verifies accuracy
- Publish high-quality data

GHG Reporting Program



Sharing information, building partnerships, and creating opportunities

Developing and implementing the GHG Reporting Program

- Collecting accurate GHG data and improving data quality
- Publishing GHG data

Using the GHG data

- Identifying sources of GHG emissions
- Helping businesses track emissions and find cost-saving efficiencies
- Providing information to the finance and investment communities

Informing program development

- Facilitating activities and programs at the Federal, State, and local levels

Uses of GHG Data



Local, regional and state agencies can customize and use this data for many purposes, including:

- policy planning and evaluation,
- comparing emissions on a local, regional, state and national levels,
- developing local and statewide GHG inventories,
- promoting energy efficiency and pollution prevention services,
- assisting with GHG Permitting and NSPS applicability,
- assisting with development of emissions guidelines for power plants,
- identifying business opportunities, such as future landfill-to-gas energy project sites,
- filling public information requests,
- meeting some mandatory reporting program requirements,
- preparing charts and graphs

Questions to Consider



- How might you use the GHGRP data?
 - Policy development?
 - State GHG Inventories?
 - Annual Reports?
- In what format would you like the data?
- Key data elements?
- Feedback on the publication tool?

States using GHG data: Iowa



- Support GHG state inventory;
 - Supplement the Industrial Processes sector
- Compare emissions with other states;
- Identify potential landfill gas to energy development projects;
- Identify industries for assistance through the Pollution Prevention Services program;
- Assist with GHG Permitting and NSPS applicability;

States Using GHG Data: Washington



- Prepare for WA state GHG reporting program that starts in 2012 (first reports in 2013) to:
 - Identify largest reporters
 - Offer technical assistance,
 - Two years of comparable data before WA program begins.
 - Will use EPA data to verify state reports

Other States Interested in GHGRP



- **New Mexico**
 - Augmenting state data from Title V with EPA GHG data for a more complete accounting of state emissions
- **Other states EPA has worked with:**
 - North Carolina
 - New Jersey
 - Massachusetts



Data Publication

- <http://ghgdata.epa.gov/ghgp/main.do>
- 2010 data published in January 2012
- Data publication website allows stakeholders and the public to access the key data elements quickly and easily and to sort data by location, sector, and by gas

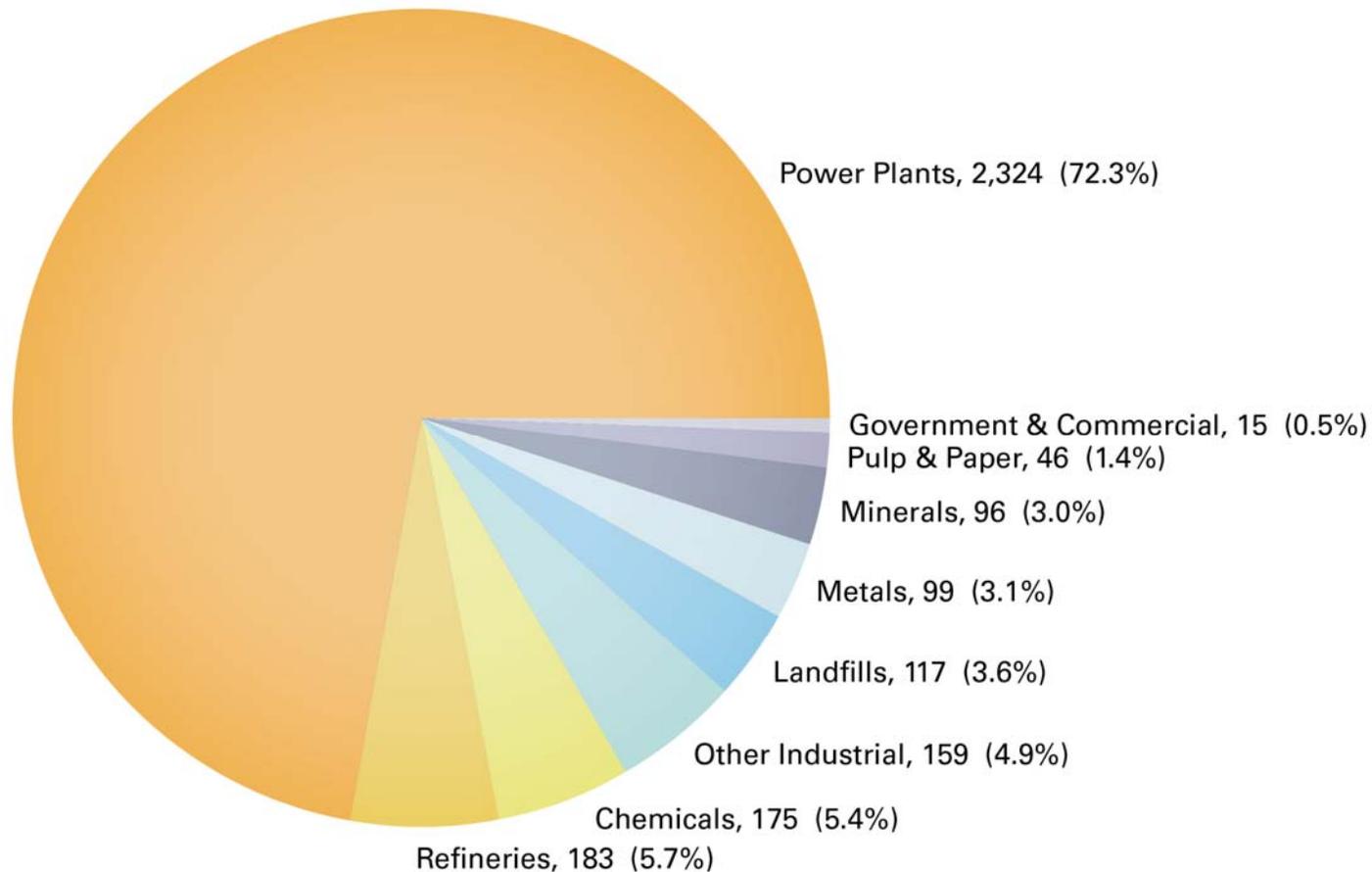


Goals of GHG Data Publication



- Increase understanding of the sources of GHG emissions in the U.S. among the public
- Voluntary management (TRI)
- Improve quality of reported data
- Support regional, state, and local programs
- Provide a tool for schools, students, researchers and journalists
- Information displayed in a simple, transparent manner
 - Allows public to use data in creative ways

Breakdown of Reported GHG Emissions (MMT CO₂e) from Stationary Sources by Industry Type - 2010*



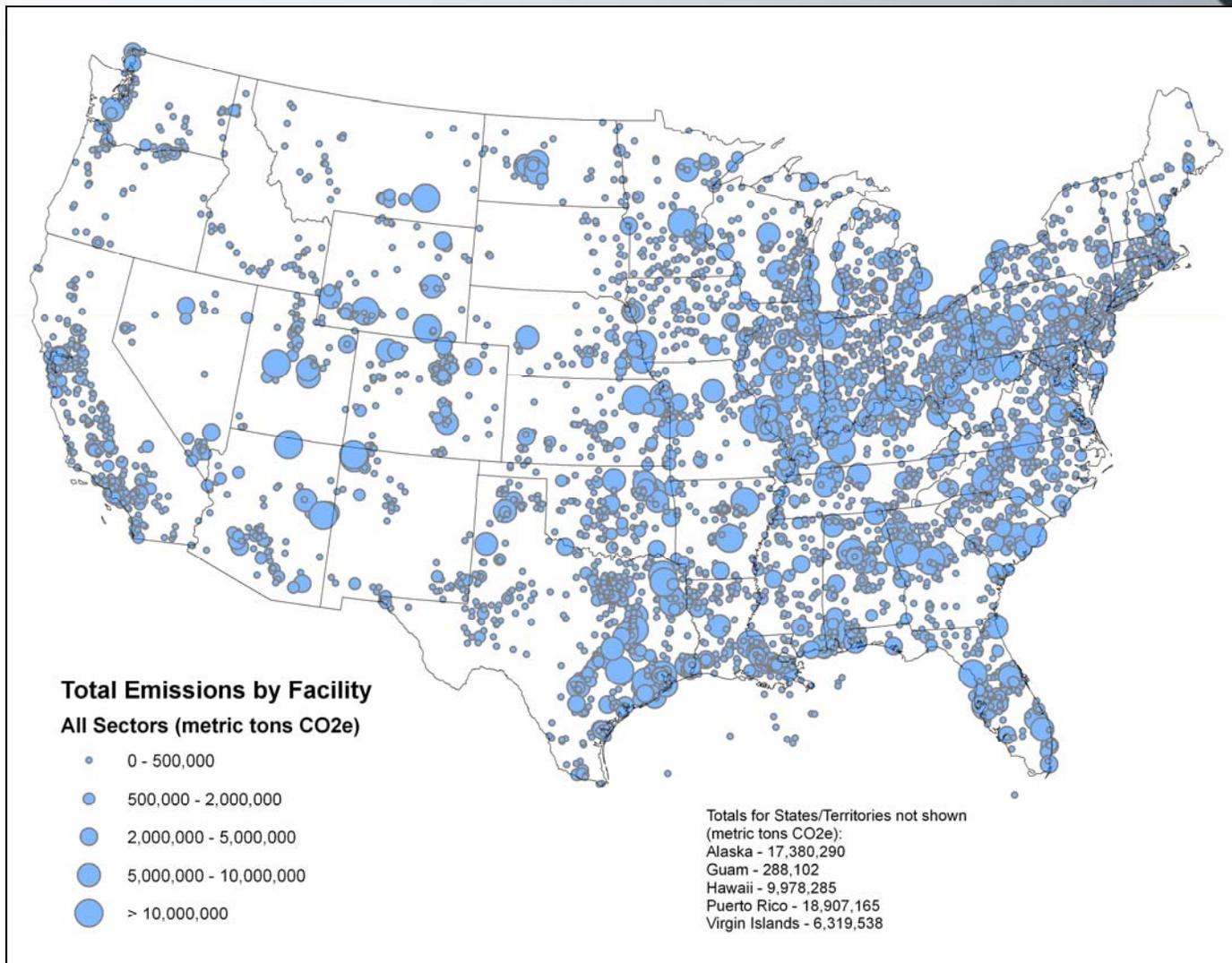
All data is as reported by facilities on 12/16/11.

This figure shows total reported GHG emissions by industry type reported to the Greenhouse Gas Reporting Program (GHGRP) in 2010. Note this figure does not represent total U.S. emissions, and percentages only imply the percent of total emissions reported by facilities in the GHGRP. The GHGRP covers the vast majority of U.S. emissions from the electric power and industrial sectors.

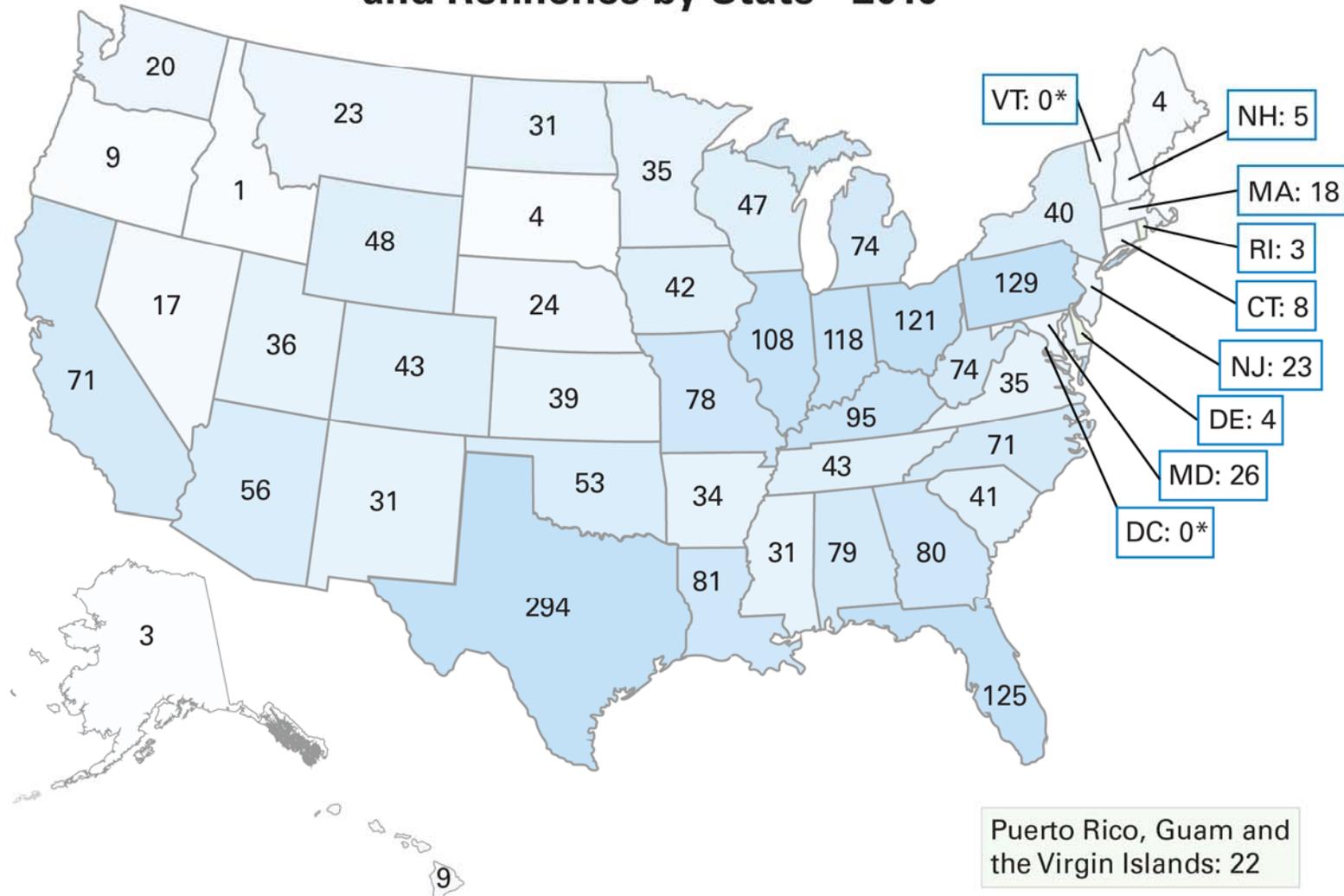
*Emissions from the transportation, residential, commercial and agricultural sectors are not reflected in these totals.



Direct GHG Emitters - 2010



Total Reported GHG Emissions (MMT CO₂e) by Power Plants and Refineries by State - 2010



All data is as reported by facilities on 12/16/11.

*These states have less than 0.5 MMT CO₂e emissions from power plants and refineries.

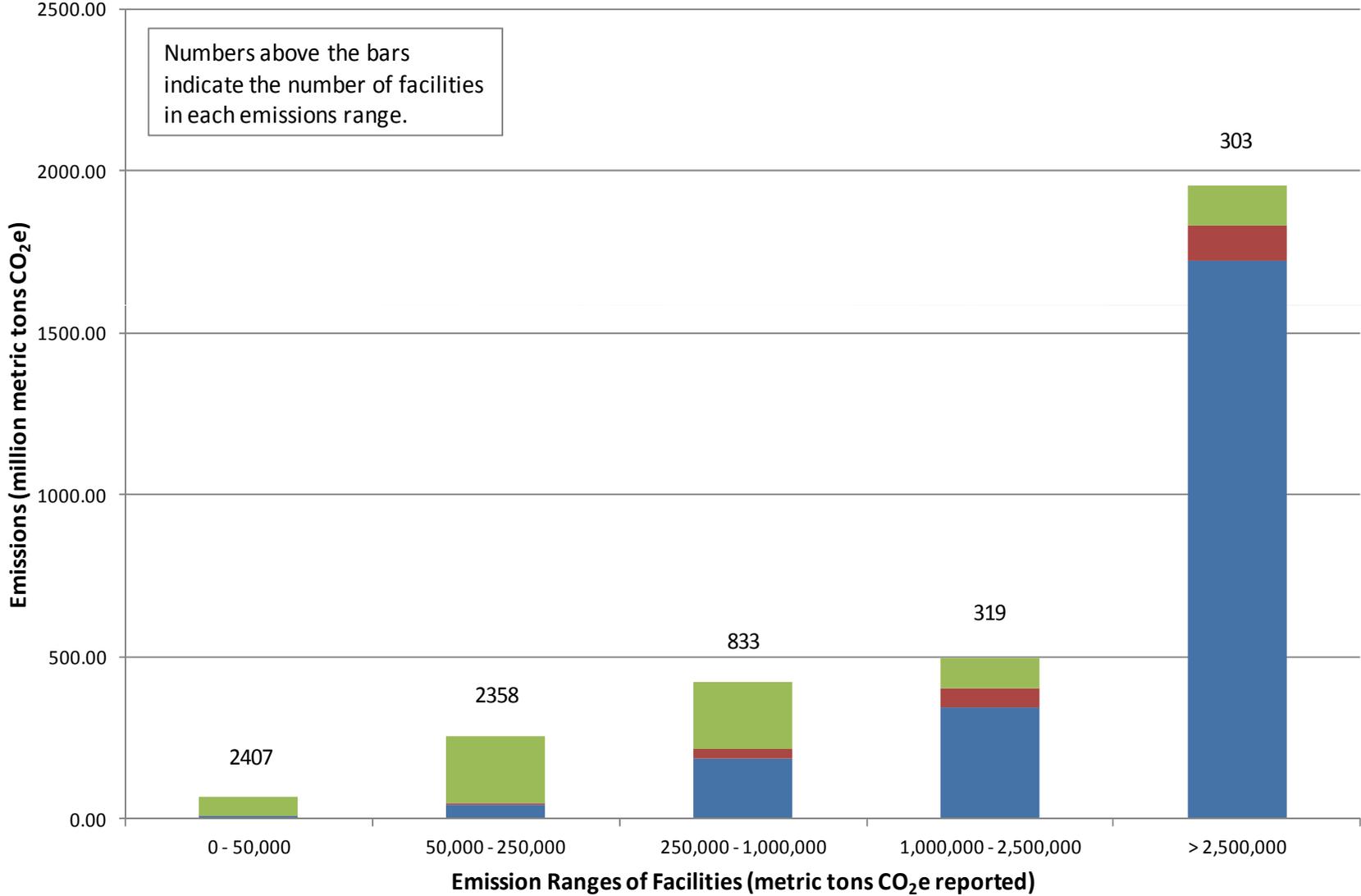
This figure shows total GHG emissions reported by power plants and refineries in each state in 2010 in million metric tons of carbon dioxide equivalent (CO₂e). All U.S. refineries are required to report. All power plants who emit above 25,000 metric tons of CO₂e and select smaller power plants are required to report.



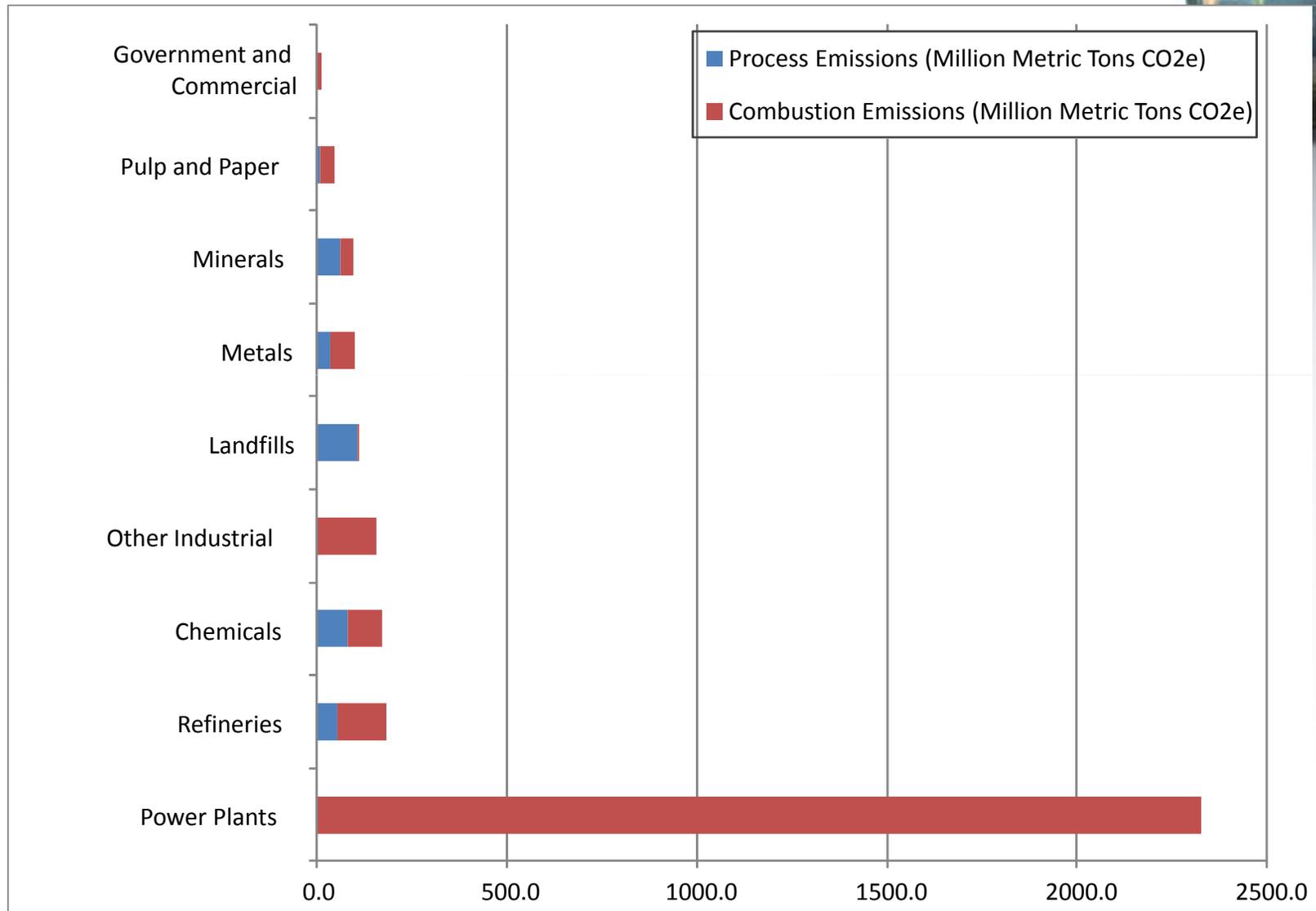
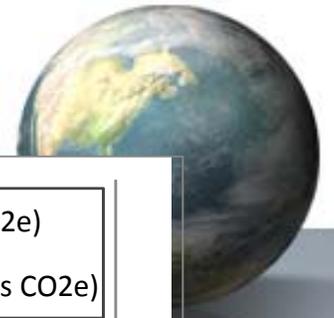
Reported Emissions (million metric tons CO₂e)

■ Power Plants ■ Refineries ■ All Other

Numbers above the bars indicate the number of facilities in each emissions range.



Combustion and Process Emissions



GHG Data Publication Tool Live Demonstration



- <http://ghgdata.epa.gov/ghgp/main.do>

EPA ghgdata 2010 Greenhouse Gas Emissions from Large Facilities

Other Data Sources | Help

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United States Download

Facility or Location View Choose State

GREENHOUSE GAS: All

Carbon Dioxide (CO₂) PFC-14
 Nitrous Oxide (N₂O) PFC-116
 Methane (CH₄) HFC-23

EMISSION RANGE: 0 - 23,000,000 MT CO₂e

6157 Total Emitters Displayed

Facility Name/Location	2010 Emissions (MT CO ₂ e)
121 REGIONAL DISPOSAL FACILITY MELISSA, TX, 75454	114,408
23rd and 3rd BROOKLYN, NY, 11232	82,955
29-6 #2 Central Delivery Point Blanco, NM, 87412	25,175
30-5 Central Delivery Point Compressor Station Aztec, NM, 87410	38,881
31-6 Central Delivery Point BLOOMFIELD, NM, 87413	63,881
32-7 Central Delivery Point BLANCO, NM, 87412	56,476
32-8 NO ₂ CDP COMPRESSOR STATION	55,072

Sector	Power Plants	Refineries	Chemicals	Other Industrial	Landfills	Metals	Minerals	Pulp and Paper	Government and Commercial
2010 GHG Emissions (MMT CO ₂ e)	2,324	183	175	159	117	99	96	46	15

Key Dates



- **July 31 – Registration Deadline for new sources**
- **Fall – Update GHG data**
 - Refresh RY 2010 data & release RY 2011 data reported in March
 - Downloadable files only
- **September 28 – RY 2011 Reporting Deadline # 2**
- **Early 2013 – Release non-CBI RY 2011 Data (Mar. + Sep.)**
 - Publication Tool & Downloadable files
 - Release aggregated CBI data
- **April 1 – RY 2012 Reporting Deadline (all sources)**
 - Data release: Fall, 2013
- **April 15 – Release of 1990-2011 US GHG Inventory**

Discussion



- How might you use the GHGRP data?
 - Policy development?
 - State GHG Inventories?
 - Annual Reports?
- In what format would you like the data?
- Key data elements?
- Feedback on the publication tool?

For More Information



GHG Reporting Program:

<http://www.epa.gov/climatechange/emissions/ghgrulemaking.html>

GHG Data Publication:

<http://ghgdata.epa.gov/ghgp/main.do>

Questions?

Email: GHGReporting@epa.gov